

Glossary

2a-7 Funds	Rule 2a-7 of the Investment Company Act of 1940 sets requirements and investment rules for money market funds. It defines accounting practices that permit a fund to report a stable net asset value of \$1 per share (see Money Market Fund).
Agency Mortgage-Backed Securities	A mortgage-backed security issued or guaranteed by federal agencies or government-sponsored enterprises.
Agent-Based Models (ABM)	A simulation model that tracks the actions of agents with specified rules of behavior as they interact over time.
Algorithmic Trading	A computer trading strategy that uses mathematical models to determine the best time to buy blocks of shares without significantly affecting a stock's price, or to capture gains based on calculations of share prices changes.
Alternative Trading Systems	Private trading networks, including some characterized by low transparency and restricted market participant access. "Dark Pools" in equity trading are examples.
Arbitrage	The simultaneous buying and selling of the same asset in different markets to make a profit from price differences with little or no risk.
Asset-Backed Commercial Paper (ABCP)	Short-term debt that has a fixed maturity of up to 270 days and is backed by financial assets such as trade receivables, consumer debt receivables, auto and equipment loans or leases, or asset-backed securities.
Authorized Participant	An entity, typically a broker-dealer, through which an exchange-traded fund acquires desired assets in exchange for equally valued shares of the fund.
Automatic Stabilizer	An economic instrument or policy tool that seeks to moderate economic fluctuations as a matter of course without direct intervention by policymakers.
Bank for International Settlements (BIS)	An international financial organization that serves central banks in their pursuit of monetary and financial stability, helping to foster international cooperation in those areas and acting as a bank for central banks.
Bank Holding Company (BHC)	Any company that has direct or indirect control of one or more banks and is regulated and supervised by the Federal Reserve in accordance with the Bank Holding Company Act of 1956. BHCs may also own nonbanking subsidiaries such as broker-dealers and asset managers.
Basel Committee on Banking Supervision (BCBS)	An international forum for the cooperation of bank supervisors that aims to improve banking supervision worldwide. The BCBS develops guidelines and supervisory standards, such as standards on capital adequacy, the core principles for effective banking supervision, and the Concordat on cross-border banking supervision. Following the financial crisis, the BCBS developed new global capital and liquidity standards for the banking system that are collectively referred to as Basel III.
Basis Point	A financial instrument unit of change equal to 1/100th of 1 percent.
Broker-Dealer	An entity that buys and sells securities for itself and others.
Call Report	A report of a bank's condition and income that all federally insured U.S. depository institutions must file on a quarterly basis.
Capital Requirement	A requirement that a specified fraction of a financial institution's funding come from equity rather than debt.

Captive Insurer	An entity that provides insurance for its parent company.
Carry Trade	An investment strategy involving borrowing at low interest rates to purchase assets that yield higher returns.
Central Clearing	A settlement system in which securities or derivatives of a specific type are cleared by one entity, a clearing house or central counterparty, which guarantees the trades. It is an alternative to bilateral or over-the-counter trading (see Over-the-Counter).
Clearing Bank	A commercial bank that facilitates payment and settlement of financial transactions, such as check clearing or matching trades between the sellers and buyers of securities and other financial instruments or contracts.
Closed Limit-Order Book	The record of unexecuted limit orders for a security placed by traders. Only the keeper of the book has access to the details of all the orders; depending on local rules, certain privileged participants, such as market makers or specialists, may have access to the highest-priced bid and lowest-priced offer.
Collateral	Any asset pledged by a borrower to guarantee payment of a debt.
Commercial Paper (CP)	Short-term (maturity of up to 270 days), unsecured corporate debt.
Comprehensive Capital Analysis and Review (CCAR)	An annual exercise by the Federal Reserve to ensure that institutions have robust, forward-looking capital planning processes that account for their unique risks and sufficient capital to continue operations throughout times of economic and financial stress.
Conditional Value at Risk (CoVaR)	A measure of the value at risk of the financial system conditional on distress at a single financial institution, from Adrian and Brunnermeier (2010).
Contagion	The process by which losses at one institution spread to other institutions through the financial system.
Contingent Capital Notes (CoCos)	A type of security that converts into a specified number of shares upon occurrence of a specified event. For a contingent capital note issued by a bank, conversion may be contingent on its level of Tier 1 capital falling below a given threshold.
Contingent Liability	A liability that is only incurred depending on the outcome of a future event.
Convexity Event Risk	Risk that an initial increase in long-term interest rates can be significantly amplified by many MBS investors actively hedging the duration of their MBS. Convexity events can result in rapid changes in long-term interest rates, sharp increases in interest rate volatility, and reduced liquidity in fixed income markets.
Correlation Risk	The risk that the value of two or more assets will move in tandem, increasing the volatility of a portfolio and potentially leading to large, simultaneous losses. Correlation risk is typically mitigated through hedging.
Countercyclical	The movement of a financial or macroeconomic variable in the opposite direction of the business cycle. A variable is procyclical if it tends to increase when the economy is growing and decrease when it is shrinking.
Countercyclical Capital Buffer	A policy requiring banks to build up capital buffers during favorable economic periods that can be used to absorb losses in unfavorable periods.
Counterparty Exposure	The vulnerability that a counterparty in a derivatives contract may default on its obligations.
Covenant-lite Loans	Loans that do not include typical protections for lenders, such as requirements that the borrower deliver annual reports or restrictions on loan-to-value ratios.
Credit Cycle	The rise in credit creation during the expansion phase of the business cycle, often accompanied by a relaxation of underwriting and other credit standards, and the subsequent decline in the availability of credit during economic contractions.

Credit Default Swap (CDS)	A bilateral contract protecting against the risk of default by a borrower. The buyer of CDS protection makes periodic payments to the seller and in return will receive a payoff if the borrower defaults, similar to an insurance contract. The buyer does not need to own the loan covered by the swap.
Credit Risk	The risk that a borrower may default on its obligations.
Credit Risk Transfer	A financial transaction, typically through credit default swaps, that changes who bears the risk of default or changes in the creditworthiness of a counterparty or debtor.
Credit Spread	The difference in yield between a security and an otherwise similar security of higher quality.
Cyclical Risk	Any financial or economic risk that is closely tied to the business cycle.
Cyclical Macroprudential Policy	A policy that seeks to moderate cyclical vulnerabilities, curbing excess leverage or funding risk in an upswing and easing constraints on leverage or funding in a crisis.
Data Committee	A committee within the Financial Stability Oversight Council whose mission is to “support FSOC coordination of, and consultation on, agency rulemakings on data collection, and seek to minimize duplication of data gathering operations.”
Data Gap	A term which describes instances where purchased, collected, or derived data currently collected by financial regulatory agencies is insufficient to perform necessary research or mandated regulatory monitoring.
Debt-to-Income Ratio	For a borrower, the ratio of debt payments to income.
Derivative	A financial contract, such as a swap, option, or futures contract, that derives its value from the price of some other security, commodity, or other asset.
Discount Window	The Federal Reserve facility for extending credit directly to eligible depository institutions.
Distressed Insurance Premium (DIP)	An indicator of a firm’s vulnerability to systemic instability. DIP uses information from firms’ credit default swap spreads and equity prices to measure the implied cost of insuring a given firm against broader financial distress.
Duration	The sensitivity of the prices of bonds and other fixed-income securities to changes in the level of interest rates.
Eurozone	An economic region comprised of all European Union countries that use the euro as their national currency.
Exchange-Traded Fund (ETF)	An investment fund whose shares are traded on an exchange. ETFs offer continuous pricing, unlike mutual funds which offer only end-of-day pricing. ETFs are often designed to track an index or a portfolio of assets.
Fair Value Models	Models for determining the value of an asset based on the price at which the asset could be bought or sold between two willing parties.
Federal Financial Institutions Examination Council (FFIEC)	An interagency body that prescribes uniform principles, standards, and report forms for the federal examination of financial institutions. The FFIEC makes recommendations to promote uniformity in the supervision of financial institutions. Members include the Federal Reserve, the FDIC, the NCUA, the OCC, the CFPB, and a representative of state financial supervisors.
Federal Funds Rate	The interest rate at which depository institutions trade balances held in their reserve accounts at the Federal Reserve, usually overnight. The Federal Open Market Committee establishes the target rate for trading in the federal funds market and the Federal Reserve Bank of New York implements it.
Feedback	A pattern of behavior in which an outcome in one sector or area of the economy is potentially magnified or reduced beyond its original scope due to the impact of the outcome on another area of the economy.

Financial Intermediation	Any financial service in which a third party or intermediary matches lenders and investors with entrepreneurs and other borrowers in need of capital. Often investors and borrowers do not have precisely matching needs, and the intermediary's capital is put at risk to transform the credit risk and maturity of the liabilities to meet the needs of investors.
Financial Research Advisory Committee	A committee providing advice and recommendations to the OFR as it carries out its duties and authorities under the Dodd-Frank Act.
Financial Stability	The condition in which the financial system is sufficiently functioning to provide its basic tasks for the economy even under stress.
Financial Stability Board (FSB)	An international coordinating body that monitors developments in the international financial system on behalf of the G-20 nations. The FSB was established by the G-20 in 2009 and is the successor to the earlier Financial Stability Forum.
Financial Stability Oversight Council	Council established by the Dodd-Frank Act with the responsibility to identify potential risks to the financial stability of the United States, promote market discipline, and respond to emerging threats to financial stability. The Council has ten voting members: the Secretary of the Treasury, who chairs the Council, Chairman of the Federal Reserve, Comptroller of the Currency, Director of the Consumer Financial Protection Bureau, Chairperson of the U.S. Securities and Exchange Commission, Chairperson of the Federal Deposit Insurance Corporation, Chairperson of the Commodity Futures Trading Commission, Director of the Federal Housing Finance Agency, Chairman of the National Credit Union Administration Board, and an independent member with insurance expertise appointed by the President. There are also five non-voting members: the Director of the Office of Financial Research (part of the Treasury Department and established by the Dodd-Frank Act), the Director of the Federal Insurance Office (also part of the Treasury Department), a state insurance commissioner, a state banking supervisor, and a state securities commissioner.
Fire Sale	The disorderly liquidation of assets to meet margin requirements or other urgent cash needs. Such a sudden sell-off drives down prices, potentially below their intrinsic value, when the quantities to be sold are large relative to the typical volume of transactions.
Fiscal Risk	Risk stemming from deviations in fiscal policy from expectations.
Form FR Y-14A	A set of semiannual balance sheet projections based on a range of potential macroeconomic scenarios that are submitted by bank holding companies with \$50 billion or more in consolidated assets. The Federal Reserve uses the data to assess capital adequacy as part of its Comprehensive Capital Analysis and Review program, and discloses summary results of stress testing.
Form FR Y-14Q	A form that collects detailed data on bank holding companies' various asset classes, capital components, and income on a quarterly basis, which the Federal Reserve uses to support supervisory stress testing models and monitoring.
Form FR Y-15	An annual report of systemic risk data submitted by bank holding companies with \$50 billion or more in consolidated assets to the Federal Reserve. Banks may request that their information be kept confidential.
Form FR Y-9C	A quarterly financial statement submitted by bank holding companies with \$500 million or more in consolidated assets. The form is the Federal Reserve's primary tool to monitor financial conditions between on-site inspections.
Form N-MFP	A monthly disclosure of portfolio holdings submitted by money market funds to the SEC, which makes the information publicly available. SEC Rule 30b1-7 establishes the technical and legal details of N-MFP filings.
Form PF (Private Funds)	A periodic report of portfolio holdings, leverage, and risk management submitted by hedge funds, private equity funds, and related entities. The reports are filed with the SEC and CFTC, which keep the information confidential. The Dodd-Frank Act mandated the reporting to help the Financial Stability Oversight Council monitor risks. Depending on fund size, reporting is annual or quarterly.

Form X-17A-5 (“FOCUS reports”)	A quarterly or monthly financial condition report submitted by broker-dealers to the SEC.
Funding Liquidity	The availability of credit to finance the purchase of financial assets.
Funding Run	A situation in which a financial institution faces heavy redemptions and is forced to liquidate positions. A funding run can involve feedback effects, such as asset fire sales.
Futures	Standardized, exchange-traded contracts to buy or sell an underlying asset at a specified date and price.
General Collateral Finance (GCF)	An interdealer repo market in which the Fixed Income Clearing Corporation plays the role of intraday central counterparty. Trades are netted at the end of each day and settled at the triparty clearing banks (see Triparty Repo).
Government-Sponsored Enterprise (GSE)	A privately owned financial institution that has a federal charter authorized by law and a mission to promote the flow of credit to the housing market, student loans, or other specific sectors.
Gross Domestic Product (GDP)	The broadest measure of aggregate economic activity, measuring the total value of all final goods and services produced within a country’s borders during a specific period.
Haircut	The discount at which an asset can be pledged as collateral. For example, a million dollar bond with a 5 percent haircut would collateralize a \$950,000 loan.
Hedge Fund	A pooled investment vehicle that is available to accredited investors and can charge a performance fee on unrealized gains, borrow more than one half of its net asset value, and sell assets short and trade complex derivative instruments that cannot be traded by mutual funds.
Hidden Markov Chain	A mathematical model for the behavior of a system that is not fully observable. For financial markets, this defines a form of latent structure with a fixed set of possible economic “states” at any given time. The probability of switching states at a particular time depends only on the current state and not, for example, on historical trends.
High-Frequency Trading	A trading strategy that uses technology to execute market orders in fractions of seconds.
Home Mortgage Disclosure Act (HMDA)	A law requiring lending institutions to report mortgage loan data.
Impaired Trading Liquidity	The inability to trade in large size without having a significant impact on market price.
Implied Volatility	When pricing an option, the volatility required as an input to the option pricing model to yield the current market price.
Interest Rate Swap	A swap in which the parties swap interest rate cash flows, typically between a fixed rate and a floating rate (see Swap).
Institutional Cash Pools	Large, short-term cash balances of nonfinancial corporations and institutional investors, such as asset managers, securities lenders, and pension funds.
International Association of Insurance Supervisors (IAIS)	An international organization of insurance regulators and supervisors that aims to promote effective and globally consistent supervision of the insurance industry and contribute to financial stability.
International Monetary Fund (IMF)	An organization created at the end of World War II to stabilize exchange rates and support international payment systems. The IMF provides credit to developing nations and those in economic distress, typically conditional on economic and financial reforms.
International Organization for Standardization (ISO)	The world’s largest developer of voluntary international standards in products, services, and practices.

International Swaps and Derivatives Association (ISDA)	A trade association of over-the-counter derivatives participants. The ISDA Master Agreement, used by many derivatives dealers and counterparties, standardized derivative terms to simplify netting and reduce legal risks.
Legal Entity Identifier (LEI)	A unique 20-digit alphanumeric code assigned to each legal entity within a company that participates in global financial markets.
Leverage	The use of borrowed money to finance investments or conduct financial activities.
Leveraged Loans	Loans extended to a borrower who already has significant amounts of debt or whose debt is not rated investment-grade by credit rating agencies.
Liquidity	See Market Liquidity and Funding Liquidity.
Liquidity Coverage Ratio (LCR)	A Basel III standard to ensure that a bank maintains adequate unencumbered, high-quality liquid assets to meet its anticipated liquidity needs for a 30-day horizon under a liquidity stress scenario specified by supervisors.
Liquidity Intermediation	The use of short-term, liquid deposits to make long-term, illiquid loans.
Loan Origination	The point in the loan process in which the borrower applies for a loan and the lender approves or declines the loan.
Loan-to-Value (LTV) Ratio	The ratio of the amount of a loan to the value of an asset, typically expressed as a percentage. This is a key metric when considering the financing of a mortgage.
London Interbank Offered Rate (LIBOR)	The interest rate at which banks can borrow unsecured funds from other banks in London wholesale money markets, as measured by daily surveys of the British Bankers' Association. The published rate is a trimmed average of the rates obtained in the survey. Many contracts are tied to the level of LIBOR, making it an important global benchmark.
Macroeconomic Risk	Risk from changes in the economy or macroeconomic policy.
Macroprudential Supervision	Supervision to promote the stability of the financial system as a whole (see Microprudential Supervision).
Margin Call	A requirement by a broker that a borrower increase the collateral pledged against a loan in response to changes in the collateral's value.
Margin Requirement	Rules governing the necessary collateral for a derivative, loan, or related security required to cover, in whole or in part, the credit risk one party poses to another.
Market Depth	The ability of a market to absorb excess demand to buy or sell a security without affecting the price quoted for subsequent trades. A market with a lot of depth will have low price impact from trading.
Market Liquidity	The ability of a market to absorb large and frequent transactions with limited price impact and low transaction costs.
Market Participant Symbol	A unique character-combination that represents an entity listed on an exchange, such as a stock's ticker symbol.
Market Risk	The risk that an asset's value will change due to unanticipated movements in market prices.
Maturity Risk	The risk that a bond's value will decrease before it matures. The probability of price fluctuation increases over longer time horizons, so interest rates are typically increasing in maturity.
Mark to Market	The process of revaluing a portfolio or security to reflect current or recent market prices.
Maturity Transformation	The funding of long-term assets with short-term liabilities. This creates a balance sheet mismatch that can pose risks when short-term funding markets are constrained.
Metadata	Data that provide information about the structure, format, or organization of other data.

Microprudential Supervision	Supervision of the activities of a bank, financial firm, or other components of a financial system (see Macroprudential Supervision).
Money Market Fund (MMF)	A fund that typically invests in government securities, certificates of deposit, commercial paper, or other highly liquid and low-risk securities. Some MMFs are governed by the SEC's Rule 2a-7.
Mortgage Real Estate Investment Trust (mREIT)	Investment vehicle that borrows short-term funds in repo markets and invests in real estate and real-estate securities.
Nonlinearity	The characteristic of an economic relationship among two or more variables that is not a simple (linear) proportion. For example, a compound growth rate is a nonlinear function of time.
Net Asset Value (NAV)	The price per share of a mutual fund or exchange-traded fund based on the value of the fund's shares at the close of the previous day.
Operational Risk	Risks occurring during the normal operation of a business, including, for example, failed internal processes.
Option	A financial contract granting the holder the right, but not the obligation, to engage in a future transaction on an underlying security or real asset. Examples include an equity call option, which provides the right but not the obligation to buy a block of shares at a fixed price for a fixed period, and an equity put option, which similarly grants the right to sell a block of shares.
Overnight Indexed Swap (OIS)	An interest rate swap used by banks to hedge against fluctuations in official interest rates set by central banks. In an OIS, an agreed index of an overnight floating rate, such as the Federal Funds Rate, is exchanged for a fixed rate for a set period (see Interest Rate Swap).
Over-the-Counter (OTC)	Trading that does not involve an organized exchange. In over-the-counter markets, participants trade directly with each other, typically through voice or computer communication.
Payment-In-Kind (PIK) Bonds	A bond that compensates the holder with other bonds rather than cash.
Price Impact Measure	The change in the market price of a security caused by a one-directional order flow (buy or sell) of a given size (see Market Depth).
Prime Broker	Brokerage offering a range of services to hedge funds, including securities lending, financing, trade execution, and cash management.
Procyclical	See Countercyclical.
Provisioning	The recording of a liability by a bank or other financial institution to cover expected losses on loans.
Refinancing Risk	The risk that a borrower will face liquidity problems if it is unable to rollover its existing debt.
Regulatory Arbitrage	The practice of taking advantage of differences between regulatory regimes to avoid their costs or constraints.
Repo Run	A situation in which repo investors lose confidence in the market due to concerns about counterparties, collateral, or both, and respond by pulling back their funding or demanding larger haircuts.
Repurchase Agreement (Repo)	A transaction in which one party sells a security to another party and agrees to repurchase it at a certain date in the future at an agreed price. Banks often do this on an overnight basis as a form of liquidity that is essentially a collateralized loan.
Reverse Repurchase Agreement	A term for a repo from the perspective of the counterparty that is lending the cash (see Repurchase Agreement).

Risk Management	The business and regulatory process of identifying and measuring risks and then responding to them. Categories of risk include operations, credit, market, control, liquidity, legal, model, and regulatory.
Risk Premium	The difference between the expected return of an asset and that of a risk-free asset. It is the investor's premium for bearing the risks of holding that asset.
Risk Transformation	A form of financial intermediation in which an intermediary raises funds from risk-averse investors and then uses those funds to provide capital to borrowers for risky ventures. Risk is retained by the intermediary and its capital serves as a buffer against losses for its investors.
Risk-Weighted Assets	Banks are required to assign a risk weighting, or a degree of credit risk, to residential mortgages, commercial real estate, derivative contracts, cash, and other assets to help supervisors calculate a minimum capital requirement. For example, a Treasury bond unconditionally guaranteed by the U.S. government has a zero risk weighting.
Run Risk	The risk that investors lose confidence in an institution — due to concerns about counterparties, collateral, solvency, or related issues — and respond by pulling back their funding.
Scenario Analysis	An analysis of performance under a range of possible market situations and different interest rates. An example might include analyzing a bank's capital ratio by simulating a range of adverse shocks to the value of its assets.
Secure Multiparty Computation	A body of computational tools to support information security by performing calculations jointly on data from multiple sources without ever sharing the various source datasets.
Securities Lending/Borrowing	The temporary transfer of securities from one party to another for a specified fee and term, in exchange for collateral in the form of cash or securities.
Securitization	A financial transaction in which assets such as mortgage loans are pooled and securities representing interests in the pool are issued.
Shadow Banking	Credit intermediation done outside of the insured depository system, involving leverage, maturity transformation, and the creation of money-like liabilities.
Shared National Credit Program	An interagency review of large syndicated bank loans in the United States conducted by the bank regulators.
Short-Term Wholesale Funding	Funding instruments that are typically issued to institutional investors to raise large amounts of funding for short periods. Examples include large checkable and time deposits, commercial paper, and repurchase agreements.
Sovereign Debt Crisis	A financial crisis created by the potential or actual default of government debt.
Statistical Data Privacy	A body of computational tools for assessing with known precision whether releases of statistical summaries are likely to reveal private data about individuals comprised by the summary.
Stress Test	A modeling exercise where asset prices are shocked a pre-specified amount, sometimes along with other financial and economic variables, to observe the effect on financial institutions or markets.
Structural Macroprudential Policy (or Through-the-Cycle)	A policy that seeks to address potential structural vulnerabilities of the financial sector (see Cyclical Macroprudential Policy).
Structural Risk	Aspects of the design of the financial system that make it vulnerable to a shock. Structural risks could include excessive leverage or liquidity, crowded trades, large credit concentrations, poor governance, overreliance on one or a small number of essential service providers, or data and analytical gaps.
Swap	An exchange of cash flows agreed by two parties with defined terms and over a fixed period.

Swap Execution Facility	A term defined in the Dodd-Frank Act as a trading platform which market participants use to execute and trade swaps by accepting bids and offers made by other participants.
Syndicated Loan	A loan, usually provided to a single borrower, by a group of lenders.
Systemic Expected Shortfall (SES)	A systemic risk indicator that estimates the extent to which the market value equity of a financial firm would be depleted by a decline in equity prices.
Term Premium	The excess yield an investor must receive in order to purchase a longer maturity bond over a shorter maturity bond of the same issuer.
Tier 1 Capital Ratio and Tier 1 Common Capital Ratio	Two measures of banking capital adequacy defined in the Basel international banking accords in which capital is compared to total risk-weighted assets. Tier 1 capital includes common stock, preferred stock, and retained earnings. Tier 1 common capital is more narrowly defined and excludes preferred stock.
Treasury-Eurodollar (TED) Spread	The spread between the three-month U.S. Treasury rate and the three-month LIBOR rate.
Triparty Repo	A repurchase agreement in which a third party agent, such as a clearing bank, acts as an intermediary for the exchange of cash and collateral between the two counterparties. In addition to providing operational services to participants, the triparty agents in the U.S. triparty repo market extend large amounts of intraday credit to facilitate the daily settlement of triparty repos.
Underwriting Standards	Terms, conditions, and criteria used to determine the extension of credit in the form of a loan or bond.
Value at Risk (VaR)	A tool measuring the risk of portfolio losses. The VaR projects the probability and maximum expected loss for a specific time period. For example, the VaR over 10 days and with 99 percent certainty measures the most one would expect to lose over a 10-day period, 99 percent of the time.

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Endnotes

CHAPTER 2

- ¹ For instance, in their monitoring framework, Adrian, Covitz, and Liang (2013) evaluate vulnerabilities affecting large complex financial institutions, shadow banks, asset markets, and nonfinancial institutions. The International Monetary Fund's vulnerability exercise is based on an assessment of risks to fiscal, financial, external, and real sectors (in the case of emerging markets), although it also includes elements of contagion and asset valuations in assessing risks to advanced economies.
- ² See, for instance, Acharya and others (2010), Adrian, Covitz, and Liang (2013), Aspachs and others (2006), Blancher and others (2013), Dattels and others (2010), FSOC (2011, 2012a, 2013), Haldane, Hall, and Pezzini (2007), OFR (2012), and Sarlin and Peltonen (2011).
- ³ Granted, some vulnerabilities may be both cyclical and structural. For instance, diminished trading liquidity may be driven by structural shifts in the market microstructure as well as by cyclical supply/demand forces.
- ⁴ A forthcoming working paper will provide further details on the selection criteria, methodology, and performance.
- ⁵ Adrian and Shin (2010), Begalle and others (2013), Brunnermeier and Pedersen (2009), Copeland, Martin, and Walker (2011), and Gorton and Metrick (2012).
- ⁶ Since the financial crisis, a larger share of collateral backing triparty repos has shifted from riskier private sector assets to government-related securities. Securities dealers have also diversified funding sources and lengthened the maturity of their repo books, and as a result in aggregate now finance only 9 percent of their liabilities with repo, down from more than 40 percent prior to the crisis. The market has also become less concentrated, with the top three dealers accounting for about 30 percent of average daily volume, down from 50 percent before the crisis, which reduces the difficulty for the financial system of absorbing a potential counterparty default. Although a substantial amount of repos is still financed overnight, the maturity of repos has lengthened.
- ⁷ Much of the mortgage REIT repo funding is concentrated in 30-day tenors, which is relatively short-term compared to the duration of their assets.
- ⁸ Based on data from Bloomberg L.P. and the Federal Reserve.
- ⁹ Mortgage REITs hedge some of their interest rate risk with derivatives, such as swaps and options, but these hedges may be insufficient to protect their portfolios from large losses if interest rates rise. In addition, they may lose access to funding if their creditors suspect they are insufficiently hedged and facing large losses.
- ¹⁰ The Federal Reserve has proposed a draft rule that would require foreign banks with a significant U.S. presence to consolidate most of their U.S. operations into an intermediate holding company in an effort to reduce potential arbitrage of enhanced U.S. prudential capital and liquidity requirements (see Board of Governors, 2012c). However, the draft rule would not require consolidation of foreign banking offices' state supervised branches and agencies, which could result in shifting risks across subsidiaries of bank holding companies.
- ¹¹ This assumes a recovery rate of 60 percent of cov-lite loans and 70 percent on other leveraged loans and the same default rate to cover the additional expected loss associated with a cov-lite loan in a normal credit cycle. See Richmond (2013).
- ¹² Duration estimates are derived from the Barclays Capital Aggregate Bond Index, which is a market capitalization-weighted index of Treasury securities, agency bonds, mortgage-backed bonds, corporate bonds, and a small amount of foreign bonds traded in the United States. Asset managers, index managers, and others often seek to manage their portfolios against the Barclays index.
- ¹³ Our dependent variable is the term premium estimated by Kim and Wright (2005). Macroeconomic factors include the unemployment gap (the difference between the seasonally-adjusted unemployment rate and the natural rate of unemployment), core consumer price inflation, and inflation uncertainty. Financial variables include a polynomial function of the MOVE index of option-implied interest rate volatility, the VIX index of option-implied equity volatility, the supply of Treasury securities held by the Federal Reserve's System Open Market Account portfolio as a share of GDP, and the supply of publicly held marketable Treasury securities, excluding Federal Reserve holdings, as a share of GDP.
- ¹⁴ Asset purchases affect the term premium in several ways. Large-scale asset purchases decrease the supply of publicly traded Treasury securities, suppressing yields (Gagnon and others, 2010). In a low-rate environment,

investors that reach for yield need less compensation for taking duration risk, and an increase in private buying of longer-term assets further suppresses the term premium. Other factors complicate this relationship. For instance, the central bank's decision to increase or decrease asset purchases is endogenous to other factors known to affect the term premium, such as macroeconomic conditions and market volatility. As a result, the ultimate drivers of the term premium are more difficult to understand and to predict as monetary policy accommodation is removed.

- ¹⁵ Funding runs, described in Brunnermeier and Pedersen (2009), occur when asset managers of leveraged funds are forced to sell assets, leading to sharp and sudden drops in asset prices, and in turn, further rounds of forced sales. Because assets are used as collateral for increased leverage, the risk-bearing capacity of the financial system can be severely diminished. Geanakoplos (2009) and Fostel and Geanakoplos (2008) show how leverage cycles can cause contagion. Adrian and Shin (2010) provide a theoretical analysis of the link between leverage and volatility.
- ¹⁶ Equity volatility is used as a proxy for broad-scale risk.
- ¹⁷ Market commentary and various trading platform data sources suggest that lean inventories and tight non-government repo financing have at least been partly responsible for the migration of broker-dealers toward larger, more frequently-traded issues.
- ¹⁸ The May-June 2013 sell-off in bond markets provided an informative test of how ETF market participants react to market stress. During the episode, fixed-income ETFs were particularly popular for investors, as reflected in higher volumes in these ETFs relative to the underlying assets. Many ETFs, particularly high-yield corporate bond ETFs, began trading at significant and volatile premiums and discounts to their net asset value (NAV) and in some cases authorized participants temporarily ceased transmitting redemption orders to various ETFs or opted to redeem shares only in-kind (rather than make available a cash redemption option). While most market participants were not concerned by these events, questions remain going forward as to how market participants in the ETF ecosystem will react in future periods of market stress, especially as dealer inventories of fixed-income securities decline and ETFs continue to expand.
- ¹⁹ IMF (2013d) shows that external factors (such as lower global risk and stimulative U.S. monetary policy) explain nearly all of the compression in emerging market bond spreads.
- ²⁰ Global asset prices are increasingly being driven by a single factor reflecting overall risks rather than multiple, idiosyncratic factors.
- ²¹ After the downgrade of the U.S. sovereign credit rating by S&P in 2011, many institutional investors adjusted their mandates to avoid automatic forced sales of Treasuries in the event of an additional downgrade. Moreover, based on historical downgrades of highly-rated sovereign credits, there generally has not been much sustained impact on yields in the run-up to, or following, a credit rating downgrade. The impact has been more pronounced and sustained when a downgrade is accompanied by a broader economic or financial crisis and following mult notch downgrades (IMF, 2011).
- ²² There is no cross-default provision for Treasury securities on Fedwire, the settlement funds transfer system run by the Federal Reserve, so only Treasury securities with a missed or delayed payment would be considered ineligible collateral. Other Treasury securities would remain unimpaired and accepted as collateral. However, repo rates, haircuts, and counterparty limits could still be affected on unimpaired Treasury securities.
- ²³ The International Swaps and Derivatives Association permits a three-day grace period on missing a payment before being considered in default. In theory, a short-lived technical default might not necessarily trigger CDS contracts.

CHAPTER 3

- ¹ A study by Fillat and Montoriol-Garriga (2010) finds that had U.S. banks set aside larger general provisions when the economy was strong, akin to Spanish banks, they could have better absorbed loan losses during the U.S. financial crisis and reduced by half the amount of Troubled Asset Relief Program funds required. However, these higher provisions would have been depleted by 2009 for the U.S. banking system in aggregate, highlighting the idea that a fixed capital buffer requirement is still needed to mitigate unexpected credit shocks.
- ² Change in capital ratio implemented over eight years. Reported numbers are unweighted median values across models from Table 1 in Macroeconomic Assessment Group (2010) and are changes relative to baseline after 35 quarters.
- ³ From Table 2, average of changes in loan rate per 100 basis points change in capital ratio.
- ⁴ From Table 10a.
- ⁵ Average over the United States, the euro area, and Japan, using data from 2004-06. The United States number is 20.5 basis points.
- ⁶ The recent proposal by the Financial Stability Board to institute haircut floors for repos is a step in the direction of enhancing the nonbank macroprudential toolkit (FSB, 2013b and 2013c). However, these restrictions would apply only to repo transactions not centrally cleared, in which nonbanks (entities not subject to capital and liquidity regulation) receive financing from banks or broker-dealers (entities subject to such regulation) against collateral other than gov-

ernment securities. This situation leaves open the possibility of a buildup of risk in nonbank-to-nonbank repo transactions and also does not address the fact that, in some non-U.S. markets, no haircut is applied to repo transactions backed by government securities, even though these securities experience price volatility and may also have credit risk. It is relevant to monitor the quantity of nonbank-to-nonbank repo as well as whether the lack of a haircut floor for non-U.S. government debt increases reliance of financial institutions on this collateral. As discussed in Chapter 5, better data related to the U.S. repo market are needed to assess these and other potential risks.

- ⁷ Opportunities for risk weight optimization in the United States are somewhat limited by the Collins amendment in the Dodd-Frank Act, which does not allow large banks to use risk weights generated by internal models below those set by regulators for smaller institutions. However, because the Collins amendment does not apply overseas, foreign banks' risk weight optimization could still undercut U.S. efforts to activate the countercyclical capital buffer requirement by failing to slow foreign credit provision to the United States.

CHAPTER 4

- ¹ The working papers are available on the Working Paper Series page under Research on the OFR website at www.treasury.gov/OFR.
- ² The code can be found on the Working Paper Series page under Research on the OFR website at www.treasury.gov/OFR.
- ³ The Financial Stability Board defines shadow banking as any "credit intermediation involving entities and activities (fully or partially) outside the regular banking system" (see FSB, 2013b).
- ⁴ This represents an upper estimate, since broker-dealers in bank holding companies have the ability to move some assets into their banks and obtain discount window financing.
- ⁵ The analysis covers categories SIC 0 through SIC 8. The category for SIC 9 is too small and miscellaneous to produce meaningful results. Liquidity measurement for the corporate bond markets is often complicated by the fact that individual bonds typically trade infrequently. This measurement challenge has become more significant since the crisis (see IMF, 2012). In this context, it helps to aggregate the individual bonds into broader indexes.

CHAPTER 5

- ¹ These datasets are generally collected following Paperwork Reduction Act requirements, and the fact that they exist is publicly known.
- ² More than 4,700 individual insurance legal entities file quarterly and annual public financial statements with the National Association of Insurance Commissioners. Each electronic filing may contain over 235,000 data elements.
- ³ The NAIC Accreditation Program seeks to establish and maintain standards to promote sound insurance company financial solvency regulation.
- ⁴ With the exception of risk retention groups formed under captive laws, which are addressed in NAIC accreditation standards.
- ⁵ See FRASER, a website maintained by the Federal Reserve Bank of St. Louis, at <http://fraser.stlouisfed.org/publication/?pid=39>
- ⁶ The eurozone currently comprises Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain. However, money market funds have exposure only to issuers in Austria, Belgium, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, and Spain. Luxembourg is excluded from the analysis due to the lack of credit default swap data on its sovereign debt.
- ⁷ The assets of feeder funds, parallel funds, and dependent parallel managed accounts are included in determining whether a reporting fund exceeds the \$500 million threshold.
- ⁸ The threshold is that the two numbers differ by more than 25 percent.
- ⁹ The ratio of Level 3 assets to the sum of Level 1, Level 2, Level 3, and cost-based assets. These values are reported as all zero for many funds and those funds are discarded from the analysis.
- ¹⁰ We deleted about 60 funds with reported net asset value less than \$5 million.
- ¹¹ Only four funds report leverage greater than 50. These funds were discarded from the analysis.
- ¹² The leverage reported for each category is a weighted average of leverage across the funds in a given category, in which the weights are gross assets. Similarly, the proportion of hard-to-value assets is a weighted average using the same weights. The results were similar when net assets were used as weights.

